

Notice of Allowability

Application No.

10/689,482

Examiner

Sin J. Lee

Applicant(s)

SHAO ET AL.

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to May 9, 2006.
2. ☒ The allowed claim(s) is/are 3-5, 16, 36, 41 and 45-47.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 10/6/2004
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☒ Interview Summary (PTO-413),
Paper No./Mail Date 5/24/2006.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. Applicants canceled previously rejected claims 24, 25, 27 and 39.
2. As previously indicated (see Office action mailed on January 25, 2005), it is the Examiner's interpretation that in present claim 36, at least one of R_1 and R_2 is bonded directly to the backbone of the polymer (i.e., the light attenuating compound of claim 36 is being bonded to the backbone of the polymer through R_1 or R_2 group directly). Also, it is the Examiner's interpretation that in present claim 46, at least one of R_1 and R_2 is bonded directly to the backbone of the polymer (i.e., the light attenuating compound of claim 46 is being bonded to the backbone of the polymer through R_1 or R_2 group directly). Also, as previously indicated, it is the Examiner's interpretation that in present claim 41, the EWG moiety is bonded directly to the backbone of the polymer (i.e., the light attenuating compound of claim 41 is being bonded to the backbone of the polymer through the EWG moiety directly).
3. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.
4. Authorization for this examiner's amendment was given in a telephone interview with Ms. Tracy Bornman (attorney for applicants) on May 24, 2006.
5. The application has been amended as follows:

In Claim 36, on line 5, delete "(a)".

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In Claim 36, on the first line following the chemical structure (X), delete "hydrogen".

In Claim 36, on the third line following the chemical structure (X), delete "and".

In Claim 36, on the first line following the chemical structure (XI), delete "hydrogen".

In Claim 36, on the third line following the chemical structure (XI), after "electron-withdrawing group;", add --- and mixtures thereof, ---.

In Claim 36, on the fourth and fifth lines following the chemical structure (XI), delete "(b) olefinic moieties of (I), (II), and mixtures thereof; and (c) mixtures of (a) and (b),".

In Claim 41, on the fourth line from the bottom, delete "cyanos,".

In Claim 46, on line 5, delete "(a)".

In Claim 46, on the fifth line from the bottom, after "carbon atom;", add --- and mixtures thereof, ---.

In Claim 46, on the third and fourth lines from the bottom, delete "(b) diolefinic moieties of (III), (IV), (V) and mixtures thereof; and (c) mixtures of (a) and (b),".
on line 5, delete "(a)".

In Claim 47, on line 5, delete "(a)".

In Claim 47, on the first line following the chemical structure (X), delete "hydrogen".

In Claim 47, on the third line following the chemical structure (X), delete "and".

In Claim 47, on the first line following the chemical structure (XI), delete "hydrogen".

In Claim 47, on the third line following the chemical structure (XI), after "electron-withdrawing group;", add --- and mixtures thereof, ---.

In Claim 47, on the fourth and fifth lines following the chemical structure (XI), delete "(b) olefinic moieties of (I), (II), and mixtures thereof; and (c) mixtures of (a) and (b),".

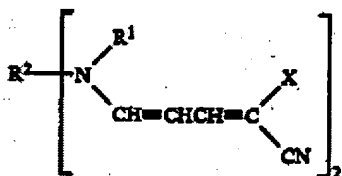
6. The following is an examiner's statement of reasons for allowance:

(i) Meador et al (6,156,479), in his Example 5(A), teaches a reaction product of a polyglycidyl methacrylate and a crotonic acid ($\text{CH}_3\text{-CH=CH-C(=O)-OH}$). The crotonic acid teaches present structure A of (I) in claim 36 and claim 47 (*present EWG being -C(=O)-OH, present R_1 's being a H atom and a methyl group, and present R_2 being H atom*) as well as present structure A of (II) in claim 36 and claim 47 (*present EWG being -C(=O)-OH, present EDG being -CH_3 , present R_1 being a H atom and present R_2 being H atom*). The resulting reaction product polymer will have the light-absorbing crotonic acid bonded to a linking moiety of $\text{-CH}_2\text{-CH(OH)-CH}_2\text{-}$ *through the acid moiety (present EWG group in Structure A's)*, and then the linking moiety in turn is bonded to the polymethacrylic backbone (for more detailed discussion on this matter, please see Paragraph 4 in the Office action mailed on July 8, 2003 for the parent application, 09/961,751). However, in present claims 36 and 47, the compounds of Structure A's of (I) and (II) has to be bonded to a polymer backbone or to a linkage unit through R_1 or R_2

(not through the EWG). Therefore, present invention is distinguishable over that of Meador.

(ii) Although Angeletti et al (Chemical Abstract 1988:6109 – for “Gas-liquid phase-transfer catalysis. Wittig-Horner reaction in heterogeneous conditions”, Journal of the Chemical Society, Perkin Transactions 1: Organic and bio-Organic Chemistry (1972-1999) (19987), (4), pg.713-14) teaches (see the second page of the enclosed abstract) a compound which meets the present formula (X) of claim 36 and claim 47, Angeletti's compound is not being bonded to a polymer as presently required. Also, Angeletti et al do not teach or suggest present structure (XI) of claim 36 or claim 47.

(iii) Blevins et al (4,719,166) teaches an anti-reflective dye which has the following structural formula:



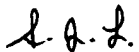
in which R^2 can represent a backbone of a polymer and X is an EWG. In this structure, the dye compound is being bonded to the polymer backbone through the nitrogen atom whereas present claim 41 requires the compound to be bonded to the polymer backbone through the EWG moiety. Also, Belvins's dye does not teach present EDG group ($-OCH_3$, $-OH$ or $-O-R_1$) of present claim 45. Also, Belvins's dye does not teach or suggest present light attenuating compounds of claim 46, because in present claim 46, present R_1 's and R_2 's can only be cyclic alkyls or acyclic alkyls (not H atoms).

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."


7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



S. Lee
May 24, 2006


SIN LEE
PRIMARY EXAMINER